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PREVALENCE OF INTESTINAL PARASITES IN SCHOOL AGED PUPILS IN GWANDU LOCAL GOVERNMENT AREA OF KEBBI STATE, NIGERIA

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ABSTRACT

Intestinal parasites are one of the major causes of mortality and morbidity in Nigeria. The aim of this research was to determine the prevalence of intestinal parasites among school aged pupils of six selected primary schools in Wando Local Government Area of Kebbi State. The study was carried out during the period of December 2015 to May 2016. A total of three hundred and thirty one (331) samples were examined using the formol ether concentration technique revealing an overall prevalence of 89(26.9%). *Ascaris lumbricoides* had the prevalence of 74(22.4%), *Trichuris trichiura* had the prevalence of 4(1.2%), while multi-parasitism had the prevalence of 11(3.3%). The prevalence of infection was noted to be higher in females pupils 49(31.0%) compared with the male pupils 40(23.1%). Also among the age group examined, a higher prevalence was observed in children between 5 and 9 years with 61(28.1%) than 10 and 14 years with 28(24.6%). However, in both cases, the difference in the prevalence was not statistically significant ($p>0.05$).

KEYWORDS: Parasites, Intestinal parasites, School aged pupils.

INTRODUCTION

Intestinal parasitic infection is one of the major health problems in developing countries. It has been estimated to affect about 3.5 billion people globally and 450 million people are thought to be ill as a result of such infections, the majority being children (WHO, 2000). Intestinal helminth infections are among common infections in school age children and they tend to occur in high intensity in this age group (Albonico *et al.,* 2002; Wosu, and Onyeabor, 2014). The most implicated parasites are *Ascaris lumbrioides*, Hookworms (*Necator americanus* and *Ancylostoma deodenale*), *Entamoeba histolitica* and *Entamoeba coli*. Others include *Trichuris trichiura, Strongyloides stercoralis, Giardia lamblia* and *Giardia intestinalis* (Agi, 1997; Nikolic *et al.,* 1998; Mbanugo and Onyebuchi, 2002; Nduka *et al.,* 2006). In a study on the prevalence of intestinal parasites among pupils in rural North Eastern Nigeria, of the 257 stool specimens examined 208 (80.90%) had intestinal parasites. In 2003, 1511 school children in Oweri, Imo State, Nigeria, were examined, 721 (47.70%) were infected with intestinal parasites (Uwaezuoke *et al.,* 2006). The World Health Organisation (1987) reported a prevalence rate ranging between 50% and 80% in children worldwide mainly by *Ascaris lumbricoides,* Hookworms and *Trichuris trichiura*. In some parts of Nigeria, Akogun, (1987), Fashuyi, (1993) and Awogun (1984) as cited by Biu, *et al.* (2012) reported a high prevalence among paediatric age group resident in Gumau District of Bauchi State; Ibadan and Illorin, while Biu and Harry (2001) and Biu and Adam (2004) also as cited by Biu, *et al.* (2012) reported a prevalence of 37.4% and 72.0% in school children and non-school children in Maiduguri metropolis. Data on intestinal parasites of school pupils in Gwandu local government area of Kebbi State is lacking, hence the need for this study with the objective of providing baseline information which could be used as an aid to medical intervention in form of sanitation and chemotherapy.

MATERIALS AND METHODS

A total of 331 samples were collected from the children attending the six selected primary schools in Gwandu local government area of Kebbi State. 7ml of 10% formaline was transferred to a centrifuge tube in which was put 1g of the stool specimen. This was mixed gently and strained using a sieve. Faecal debris and the suspension were then transferred to another test tube containing 4ml of ethyl acetate. The mixture was thoroughly shaken for 1minute after closure with a stop cork, and then centrifuged at 3,500 revolutions per minute for 5 minutes. The layers of formal ether and faecal debris were decanted and a drop of the stool sediments was placed on a clean grease-free glass slide and covered with a cover slip and examined under x10 and x40 objective lenses. A drop of lugol's iodine was

added to provide clarity of eggs and cysts as described by Monica, (2006). Based on the morphological characteristics, the parasites recovered ware identified using the bench aids for the diagnosis of intestinal parasites WHO, (1994) as a pictured guide.

RESULTS

Table 1 shows the prevalence of the intestinal parasites among school age children in Gwandu local government. An overall prevalence of 26.9% was obtained, with *Ascaris lumbricoides* representing 22.4%, *Trichuris trichiura* 1.2%. Mixed infection with *Ascaris lumbricoides* and *Trichuris trichiura* represent 2.1%, *Ascaris lumbricoides* and *Schistosoma mansoni* 0.6%, *Ascaris lumbricoides* and *Strongiloides stercoralis* 0.3% and *Ascaris lumbricoides* with Hookworm 0.3% and overall mixed infection had the percentage occurrence of 3.3%. An overall mean intensity was found to be 2.49 with *Ascaris lumbricoides* having the mean intensity of 2.34 and *Trichuris trichiura* had 1.0. Table 2 shows the prevalence of intestinal parasites in school aged pupils based on their age group, sex and schools visited. Highest prevalence was recorded between the age group 5 and 9 years (28.1%), and female pupils (31.0%) were noted to be more infected than the male pupils. Sarkin Fawa Model Primary School was with the highest prevalence of the infections than the other visited schools.

Table 1: Prevalence of intestinal parasites among school aged children in Gwandu LGA.

Eggs isolated	Occurrence	Prevalence (%)	Mean intensity
Ascaris lumbricoides	74	22.4	2.34
Trichuris trichiura	4	1.2	1.0
Mixed infections			
Ascaris lumbricoides and Trichuris trichiura	7	2.1	3.14
Ascaris lumbricoides and Schistosoma mansoni	2	0.6	9.0
Ascaris lumbricoides and Strongiloides stercoralis	1	0.3	2.0
Ascaris lumbricoides and Hookworm	1	0.3	3.0
Total	89	26.9%	2.49

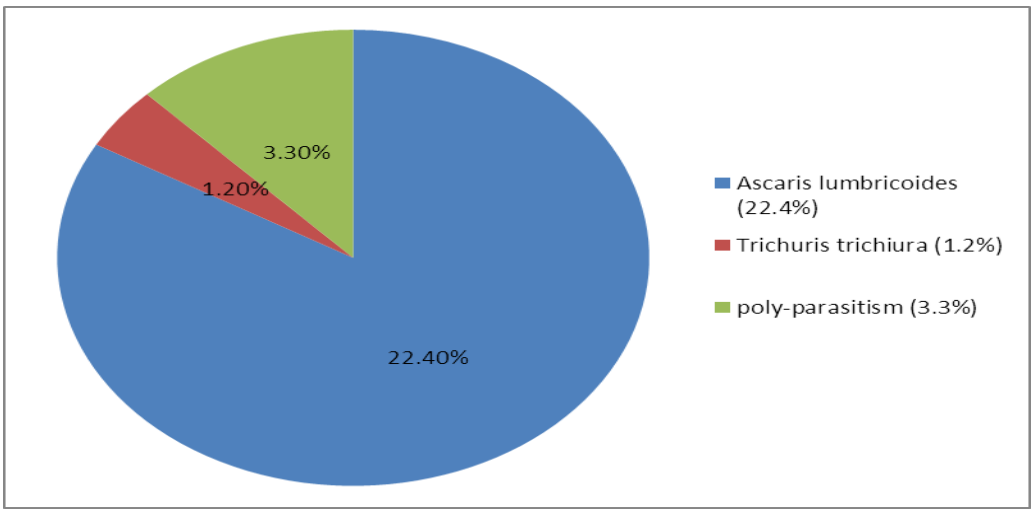

Figure 1: Prevalence of intestinal parasites among school aged pupils in Gwandu LGA.

Table 2: Prevalence of intestinal parasites in school aged pupils based on their age group, sex and schools visited.

	No. examined	No. infected	Prevalence (%)
Age group:			
5 – 9	217	61	28.1
10 – 14	114	28	24.6
Sex:			
Male	173	40	23.1
Female	158	49	31.0
Schools visited:			
Gwabare Model Primary School (GMPS)	64	10	15.6
Dalijan Model Primary School (DMPS)	54	13	24.1
Sarkin Fawa Model Primary School (SMPS)	42	18	42.9
Umaru Cheberu Nizamiyya Model Primary School (UNMPS)	49	14	28.6
Masama Model Primary School (MMPS)	61	18	29.5
Malisa Model Primary School (MLMPS)	61	16	26.2

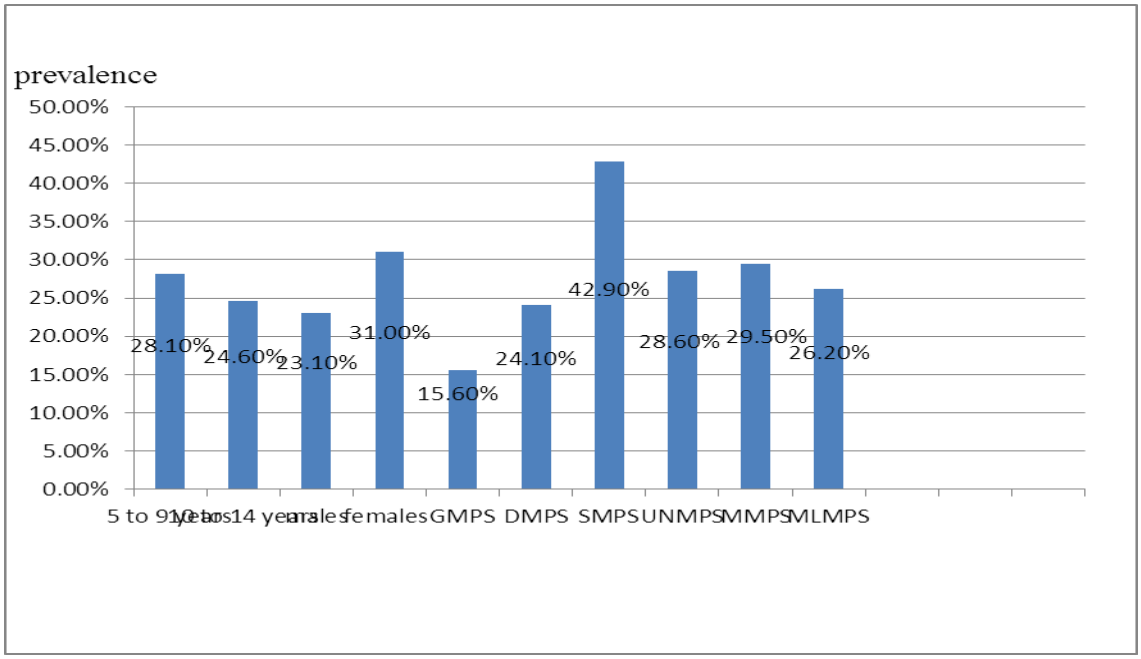

Figure 2: Prevalence of intestinal parasites based on age group, gender, and schools visited in Gwandu LGA.

DISCUSSION

The scatological study has provided a moderate prevalence (26.9%) of the intestinal parasitic infections in school children (table 1). This is in consonance with the reports by Ekundayo *et al.* (2007) as cited by Lorina (2013) which indicated that since 1970s, the triad of *Ascaris lumbricoides, Trichuris trichiura* and hookworm species are common in Nigeria. Biu, *et al.* (2012) reported that, Adeyeba and Akinlabi (2002) and Mbanugo and Onyebuchi (2002) also attested that school aged children usually eat foods that are from doubtful sources, and they are generally reservoirs of parasitic infections. Desta *et al.* (2014) also reported that school aged children carry the heaviest burden of the associated morbidity of the intestinal parasites, due to their dirty habits of playing or handling of infested soils, eating with soiled hands, unhygienic toilet practices, drinking and eating of contaminated water and food. Moreover, the prevalence (26.9%) was also in line with the research conducted by Shehu (2010), in Maru local government area of Zamfara State, where *Ascaris lumbricoides* had the highest prevalence 32.23%; followed by *Trichuris trichiura* 20.39% and mixed infection had 29.60%. The prevalence of *Trichuris trichiura* infections in the study area was not unexpected since it is known that similar conditions which influence the endemicity of *Ascaris lumbricoides* also influence its endemcity (O'Larcain and Holland, 2000). This study has also shown female pupils to be more infected than male pupils, and age group between 5 and 9 are also mostly infected (table 2). This agrees with findings by Etim, *et al.* (2002) as cited by Biu, *et al.* (2012), that age group between 5 and 13 do have higher prevalence among community members, while intensity of parasite infections reduces with age (Nwosu, 1981). This is also similar to the observations made by Biu and Harry (2001), Biu and Muhammad (2013).

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